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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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LU, CHARLES EDWARD				
ART UNIT		PAPER NUMBER		
2163				

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/623,406

Applicant(s)

HSIUNG ET AL.

Examiner

Charles E. Lu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/18/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-20 have been submitted for examination.
2. Claims 1-20 have been rejected.

### ***Drawings***

**3. The drawings are objected to because of the following informalities:**

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

The subject matter of **claims 3, 5, 11, 13, 17, and 19** do not appear to be shown in the drawings. The claimed features (e.g., starting and stopping the production database) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

#### **4. The specification is objected to because of the following informalities:**

The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the prior art. It is recommended that the title should reflect the gist of or the improvement of the present invention.

Appropriate corrections are required.

### ***Claim Objections***

#### **5. Claim 6 is objected to because of the following informalities:**

As to claim 6, line 2, "perform said load data" should be changed to perform said loading of data for grammatical correctness.

Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**7. Claims 1-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

**As to claims 1 and 8**, the claimed system appears to be implemented in software per se, which is functional descriptive material per se and therefore non-statutory. Additionally, claims 1 and 8 do not appear to produce a useful, concrete, and tangible result, and therefore, the claims are non-statutory. For example, merely generating a checkpoint, loading data to a clone, and switching the checkpoint, as seen in claims 1 and 8, does not appear to produce a useful, concrete, and tangible result.

**As to claim 9**, the claimed method does not appear to produce a useful, concrete, and tangible result for the same reasons as discussed above with respect to claims 1 and 8.

**As to claim 15**, the claimed program instructions do not appear to produce a useful, concrete, and tangible result for the same reasons as discussed above. Furthermore, the computer accessible medium can be interpreted as a signal (see specification, page 17, para. 0055), which is non-statutory.

**Claims 2-7, 10-14, and 16-20** are rejected under 35 U.S.C. 101, based upon their dependency on the rejected independent claims and their failure to cure the deficiencies of the independent claims.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**9. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

**As to independent claim 1**, it is unclear to which production database “the production database” in line 10 refers. Additionally, there is insufficient antecedent basis for “the entry point” in line 10.

**Claims 8, 9, and 15** are rejected for the limitation of “the entry point” as described above.

**Claims 2-7, 10-14, and 16-20** are rejected under 35 U.S.C.112, second paragraph, based upon their dependency on the rejected independent claims.

The broadest reasonable interpretation of the above terms in light of the specification has been given to the claims. Art rejection of the above claims is applied as best understood in light of the rejection under 35 U.S.C. 112, second paragraph, discussed above.

### ***Claim Rejections - 35 USC § 103***

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**12. Claims 1-3, 5-11, 13-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al (Pub. No. 2003/0092438) in view of Lomet (U.S. Patent 6,578,041).**

**As to claim 1**, Moore teaches the following claimed subject matter:

A production database (primary database, fig. 2, #52);

Generating a checkpoint of a production database (fig. 2, #82, para. 0019);

Generating a database clone from the storage checkpoint (replicating the state data, para. 0019);

Loading data to the database clone (transferring data to the secondary controller, para. 0019);

Switching the storage checkpoint to be the entry point to the production database (secondary assuming control of the database therefore being an entry point for subsequent processing of the database, para. 0020);

Moore does not expressly teach wherein the production database is available for access by users during the loading.

However, Lomet teaches wherein a database is available for access during loading to a clone. Lomet sets up the databases as a production (primary) database and a cloned database (fig. 2). Lomet states that a database available for access during backup is conventional (on-line backup, col. 3, ll. 25-30) and provides an improved method for coping data from an active, stable database to a backup database while update activity continues (col. 6, ll. 32-42, 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moore with the above teachings, such that the production database is available for access during the loading. The motivation would have been to achieve high availability, as taught by Lomet (col. 3, ll. 35-40).

**As to claim 2**, Moore, as modified by Lomet, teaches performing post-processing on the clone prior to the switching (e.g., copying the data to the clone after a stable state is known, para. 0019).

**As to claim 3**, Moore, as modified by Lomet, teaches stopping the production database prior to the switch (fig. 3, #107) and starting the production database after the switch (para. 0020, fig. 4, #124). Note that the production database after the switch is taken to be the cloned database that now operates as a primary database.

**As to claim 5**, Moore, as modified by Lomet, teaches wherein the generated database clone includes references to data (e.g., the replica state databases are logical pointers to a single physical database, para. 0019).



Moore and Lomet do not expressly teach references to data in the production database.

However, Moore suggests that the references could be used for data in the production database (fig. 2, #52, para. 0018-0020).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moore and Lomet with the above teachings, such that the clone includes references (pointers) to data in the production database. The motivation would have been to adapt to the particular requirements of the database system, as taught by Moore (para. 0019).

**As to claim 6**, Moore, as modified by Lomet, teaches wherein the refresh mechanism is configured to perform the loading of data to the clone on a different host machine than the host machine hosting the production database (para. 0018-0020, fig. 2).

**As to claim 7**, Moore, as modified by Lomet, teaches performing the loading of data to the database clone on a host machine hosting the production database (fig. 2, para. 0018-0020).

**Claims 8-11, 13-17, 19 and 20** are directed to a system, method, or computer readable medium claiming the same invention as system claims 1, 2, 3, 5, and 6. Therefore, claims 8-11, 13-17, 19 and 20 are rejected based upon the same reasoning as stated above in the rejection of claims 1, 2, 3, 5, and 6.

**13. Claims 4, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al (Pub. No. 2003/0092438) in view of Lomet (U.S. Patent 6,578,041) further in view of Applicant Admitted Prior Art (AAPA).**

**As to claim 4**, Moore and Lomet do not expressly teach wherein the production database is a data warehouse.

However, AAPA teaches that a data warehouse is a database and may be a consolidation of other databases (p. 1, ll. 13-15). Moore and Lomet both teach production databases, as discussed above.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moore and Lomet with the above teachings, such that the production database is a data warehouse. The motivation would have been to facilitate business decisions, as taught by AAPA (p. 1, ll. 14-19).

**Claims 12 and 18** are directed to a method, or computer readable medium claiming the same invention as system claim 4. Therefore, claims 12 and 18 are rejected based upon the same reasoning as stated above in the rejection of claim 4.

***Conclusion***

14. The following prior art cited on the PTO-892 form, not relied upon, is considered pertinent to applicant's disclosure:

Yousefi'zadeh, Homayoun, Pub. No. 2004/0030739 discloses a database remote replication for multi-tier computer systems.

Mutalik et al, Pub. No. 2003/0005120 discloses an information replication system having enhanced error detection and recovery.

Dings et al, U.S. Patent 6,978,282 discloses an information replication system having automated replication storage.

McCargar, Scott, U.S. Patent 6,014,674 discloses a method for maintaining log compatibility in database systems.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on (571) 272-4023. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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